



Docket No.: 25436/2412
Serial No.: 10/815,337

SEQUENCE LISTING

<110> Gurtu, V

<120> Renilla GFP MUTANTS WITH INCREASED FLUORESCENT INTENSITY

<130> 25436/2412

<140> US 10/815,337

<141> 2004-03-31

<150> 60/460,432

<151> 2003-04-04

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<170> PatentIn version 3.3

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 65 70 75 80
 Glu Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val
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 Tyr Glu Arg Thr Leu Arg Tyr Glu Asp Gly Gly Leu Val Glu Ile Arg
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 Ser Asp Ile Asn Leu Ile Glu Glu Met Phe Val Tyr Arg Val Glu Tyr
 115 120 125
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 130 135 140
 Thr Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val
 145 150 155 160
 Leu Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe
 165 170 175
 Tyr Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys
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 Asp Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr
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Gln	Ile	Arg	Val	Thr	Lys	Gly	Ala	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile	50	55	60	
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Thr	Gly	Leu	Gln	Pro	Ser	Phe	Glu	Val	Val	Tyr	Met	Asn	Asp	Gly	Val	145	150	155	160
Leu	Val	Gly	Gln	Val	Ile	Leu	Val	Tyr	Arg	Leu	Asn	Ser	Gly	Lys	Phe	165	170	175	
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195	200	205
Val Glu Asp Gly Gly Phe Val Glu Gln His Glu Thr Ala Ile Ala Gln		
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Leu Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val		
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 Tyr Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys
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 Asp Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr
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Tyr	Glu	Arg	Thr	Met	Arg	Tyr	Glu	Asp	Gly	Gly	Leu	Val	Glu	Ile	Arg	
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Val	Glu	Asp	Gly	Gly	Phe	Val	Glu	Gln	His	Glu	Thr	Ala	Ile	Ala	Gln	
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 35 40 45
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Lys Gly Arg Asn Phe Pro Asn Asp Gly Pro Val Met Lys Lys Thr Ile					
	130		135		140
Thr Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val					
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Leu Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe					
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Tyr Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys					
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Asp Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr					
	195		200		205
Val Glu Asp Gly Gly Phe Val Glu Gln His Glu Thr Ala Ile Ala Gln					
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Glu	Asp	Ile	Ser	Asp	Phe	Phe	Ile	Gln	Ser	Phe	Pro	Ala	Gly	Phe	Val
				85					90					95	
Tyr	Glu	Arg	Thr	Leu	Cys	Tyr	Glu	Asp	Gly	Gly	Leu	Val	Glu	Ile	Arg
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Ser	Asp	Ile	Asn	Leu	Ile	Glu	Glu	Met	Phe	Val	Tyr	His	Val	Glu	Tyr
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Lys	Gly	Arg	Asn	Phe	Pro	Asn	Asp	Gly	Pro	Val	Met	Lys	Lys	Thr	Ile
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Thr	Gly	Leu	Gln	Pro	Ser	Phe	Glu	Val	Val	Tyr	Met	Asn	Asp	Gly	Val
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Tyr	Ser	Cys	His	Met	Arg	Thr	Leu	Met	Lys	Ser	Lys	Gly	Val	Val	Lys
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Asp	Phe	Pro	Glu	Tyr	His	Phe	Ile	Gln	His	Arg	Leu	Glu	Lys	Thr	Tyr
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Val	Glu	Asp	Gly	Gly	Phe	Val	Glu	Gln	His	Glu	Thr	Ala	Ile	Ala	Gln
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Met Glu Gly Cys Gly Lys Gly Asn Ile Leu Phe Gly Asn Gln Leu Val
              35              40              45

Gln Ile Arg Val Thr Lys Gly Ala Pro Leu Pro Phe Ala Phe Asp Ile
50              55              60

Leu Ser Pro Ala Phe Gln Tyr Gly Asn Arg Thr Phe Thr Lys Tyr Pro
65              70              75              80

Glu Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val
              85              90              95

Tyr Glu Arg Thr Leu Arg Tyr Glu Asp Gly Gly Leu Val Glu Ile Arg
              100              105              110

Ser Asp Ile Asn Leu Ile Glu Gly Met Phe Val Tyr Arg Val Glu Tyr
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 Asp Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr
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 <211> 239
 <212> PRT
 <213> Renilla reniformis

<400> 16

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Met Val Ser Lys Gln Ile Leu Lys Asn Thr Gly Leu Gln Glu Ile Met
1           5           10           15

Ser Phe Lys Val Asn Leu Glu Gly Val Val Asn Asn His Val Phe Thr
          20           25           30

Met Glu Gly Cys Gly Lys Gly Asn Ile Leu Phe Gly Asn Gln Leu Val
          35           40           45

Gln Ile Arg Val Thr Lys Gly Ala Pro Leu Pro Phe Ala Phe Asp Ile
          50           55           60

Leu Ser Pro Ala Phe Gln Tyr Gly Asn Arg Thr Phe Thr Lys Tyr Pro
65           70           75           80

Glu Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val
          85           90           95

Tyr Glu Arg Thr Leu Arg Phe Glu Asp Gly Gly Leu Val Glu Ile Arg
          100          105          110

Ser Asp Ile Asn Leu Ile Glu Glu Met Phe Val Tyr Arg Val Glu Tyr
          115          120          125

Lys Gly Arg Asn Phe Pro Asn Asp Gly Pro Val Met Lys Lys Thr Ile
          130          135          140

Thr Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val
145          150          155          160

Leu Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe
          165          170          175

Tyr Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys
          180          185          190

Asp Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr
          195          200          205

Val Glu Asp Gly Gly Phe Val Glu Gln His Glu Thr Ala Ile Ala Gln
          210          215          220

Leu Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val
225          230          235

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<210> 17

<211> 720

<212> DNA

<213> Renilla reniformis

<400> 17

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 gaggacatca gcgacttctt catccagagc ttccccgccg gcttcgtgta cgagcgcacc 300
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 aagaagacca tcaccggcct gcagcccagc ttcgaggtgg tgtacatgaa cgacggcgtg 480
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 cagcaccgcc tggagaagac ctacgtggag gacggcggct tcgtggagca gcacgagacc 660
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<210> 18
 <211> 239
 <212> PRT
 <213> Renilla reniformis

<400> 18

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Ser	Phe	Lys	Val	Asn	Leu	Glu	Gly	Val	Val	Asn	Asn	His	Val	Phe	Pro
			20					25					30		
Met	Glu	Gly	Cys	Gly	Lys	Gly	Asn	Ile	Leu	Phe	Gly	Asn	Gln	Leu	Val
		35					40					45			
Gln	Ile	Arg	Val	Thr	Lys	Gly	Ala	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile
	50					55					60				
Leu	Ser	Pro	Ala	Phe	Gln	Tyr	Gly	Asn	Arg	Thr	Phe	Thr	Lys	Tyr	Pro
65					70				75					80	
Glu	Asp	Ile	Ser	Asp	Phe	Phe	Ile	Gln	Ser	Phe	Pro	Ala	Gly	Phe	Val
			85					90						95	
Tyr	Glu	Arg	Thr	Leu	Arg	Phe	Glu	Asp	Gly	Gly	Leu	Val	Glu	Ile	Arg
			100					105					110		
Ser	Asp	Ile	Asn	Leu	Ile	Glu	Glu	Met	Phe	Val	Tyr	Arg	Val	Glu	Tyr
		115					120					125			
Lys	Gly	Arg	Asn	Phe	Pro	Asn	Asp	Gly	Pro	Val	Met	Lys	Lys	Thr	Ile
	130					135					140				
Thr	Gly	Leu	Gln	Pro	Ser	Phe	Glu	Val	Val	Tyr	Met	Asn	Asp	Gly	Val
145					150					155				160	

Leu Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe
 165 170 175
 Tyr Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys
 180 185 190
 Asp Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr
 195 200 205
 Val Glu Asp Gly Gly Phe Val Glu Gln His Glu Thr Ala Ile Ala Gln
 210 215 220
 Leu Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val
 225 230 235

<210> 19
 <211> 720
 <212> DNA
 <213> Renilla reniformis

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 atgttcgtgt accgcgtgga gtacaagggc cgcaacttcc ccaacgacgg ccccgatgatg 420
 aagaagacca tcaccggcct gcagcccagc ttcgaggtgg tgtacatgaa cgacggcgtg 480
 ctggtggggc aggtgatcct ggtgtaccgc ctgaacagcg gcaagttcta cagctgccac 540
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 cagcaccgcc tggagaagac ctacgtggag gacggcggct tcgtggagca gcacgagacc 660
 gccatcgccc agctgaccag cctgggcaag ccctggggca gcctgcacga gtgggtgtaa 720

<210> 20
 <211> 239
 <212> PRT
 <213> Renilla reniformis

<400> 20

Met Val Ser Lys Gln Ile Leu Lys Asn Thr Gly Leu Gln Glu Ile Met
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 Ser Phe Lys Val Asn Leu Glu Gly Val Val Asn Asn His Val Phe Thr
 20 25 30

Met Glu Gly Cys Gly Lys Gly Asn Ile Leu Phe Gly Asn Gln Leu Val
 35 40 45
 Gln Ile Arg Val Thr Lys Gly Ala Pro Leu Pro Phe Ala Phe Asp Ile
 50 55 60
 Leu Ser Pro Ala Phe Gln Tyr Gly Asn Arg Thr Phe Thr Lys Tyr Pro
 65 70 75 80
 Glu Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val
 85 90 95
 Tyr Glu Arg Thr Leu Arg Tyr Glu Asp Gly Gly Leu Val Glu Ile Arg
 100 105 110
 Ser Asp Ile Asn Leu Ile Glu Gly Met Phe Val Tyr Arg Val Glu Tyr
 115 120 125
 Lys Gly Arg Asn Phe Pro Asn Asp Gly Pro Val Met Lys Lys Thr Ile
 130 135 140
 Thr Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val
 145 150 155 160
 Leu Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe
 165 170 175
 Tyr Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys
 180 185 190
 Asp Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr
 195 200 205
 Val Glu Asp Gly Gly Phe Val Glu Gln His Glu Thr Ala Ile Ala Gln
 210 215 220
 Leu Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val
 225 230 235

<210> 21

<211> 720

<212> DNA

<213> Renilla reniformis

<400> 21

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atcctgtccg gcaaccagct ggtgcagatc cgcgtgacca agggcgcccc cctgcccttc 180

gccttcgaca tcctgagccc cgccttccag tacggcaacc gcaccttcac caagtacccc 240

gaggacatca gcgacttctt catccagagc ttccccgccg gcttcgtgta cgagcgcacc 300

ctgcgcttcg aggacggcgg cctggtggag atccgcagcg acatcaacct gatcgaggag 360

atgttcgagt accgctgga gtacaagggc cgcaacttcc ccaacgacgg ccccgatg 420
aagaagacca tcaccggcct gcagcccagc ttcgaggtgg tgtacatgaa cgacggcgtg 480
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atgcgcaccc tgatgaagag caagggcgtg gtgaaggact tccccgagta ccacttcac 600
cagcaccgcc tggagaagac ctacgtggag gacggcggtc tcgtagagca gcacgagacc 660
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<210> 22
<211> 239
<212> PRT
<213> Renilla reniformis

<400> 22

Met	Val	Ser	Lys	Gln	Ile	Leu	Lys	Asn	Thr	Gly	Leu	Gln	Glu	Ile	Met
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Ser	Phe	Lys	Val	Asn	Leu	Glu	Gly	Val	Val	Asn	Asn	His	Val	Phe	Thr
			20					25					30		
Met	Glu	Gly	Cys	Gly	Lys	Gly	Asn	Ile	Leu	Ser	Gly	Asn	Gln	Leu	Val
		35					40					45			
Gln	Ile	Arg	Val	Thr	Lys	Gly	Ala	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile
	50					55					60				
Leu	Ser	Pro	Ala	Phe	Gln	Tyr	Gly	Asn	Arg	Thr	Phe	Thr	Lys	Tyr	Pro
65					70				75					80	
Glu	Asp	Ile	Ser	Asp	Phe	Phe	Ile	Gln	Ser	Phe	Pro	Ala	Gly	Phe	Val
				85					90					95	
Tyr	Glu	Arg	Thr	Leu	Arg	Phe	Glu	Asp	Gly	Gly	Leu	Val	Glu	Ile	Arg
			100					105					110		
Ser	Asp	Ile	Asn	Leu	Ile	Glu	Glu	Met	Phe	Glu	Tyr	Arg	Val	Glu	Tyr
			115				120					125			
Lys	Gly	Arg	Asn	Phe	Pro	Asn	Asp	Gly	Pro	Val	Met	Lys	Lys	Thr	Ile
	130					135					140				
Thr	Gly	Leu	Gln	Pro	Ser	Phe	Glu	Val	Val	Tyr	Met	Asn	Asp	Gly	Val
145				150						155				160	
Leu	Val	Gly	Gln	Val	Ile	Leu	Val	Tyr	Arg	Leu	Asn	Ser	Gly	Lys	Phe
			165					170						175	
Tyr	Ser	Cys	His	Met	Arg	Thr	Leu	Met	Lys	Ser	Lys	Gly	Val	Val	Lys
			180					185					190		
Asp	Phe	Pro	Glu	Tyr	His	Phe	Ile	Gln	His	Arg	Leu	Glu	Lys	Thr	Tyr

195	200	205	
Val Glu Asp Gly Gly Phe	Val Glu Gln His Glu Thr	Ala Ile Ala Gln	
210	215	220	
Leu Thr Ser Leu Gly Lys Pro	Leu Gly Ser Leu His Glu Trp	Val	
225	230	235	
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<211> 720			
<212> DNA			
<213> Renilla reniformis			
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gccttcgaca tcctgagccc cgccttccag tacggcaacc gcaccttcac caagtacccc			240
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aagaagacca tcaccggcct gcagcccagc ttcgaggtgg tgtacatgaa cgacggcgtg			480
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cagcaccgcc tggagaagac ctacgtggag gacggcggct tcgtggagca gcacgagacc			660
gccatcgccc agctgaccag cctgggcaag cccctgggca gcctgcacga gtgggtgtaa			720
<210> 24			
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<213> Renilla reniformis			
<400> 24			
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Ser Phe Lys Val Asn Leu Glu Gly Val Val Asn Asn His Val Phe Thr			
20	25	30	
Met Glu Gly Cys Gly Lys Gly Asn Ile Leu Ser Gly Asn Gln Leu Val			
35	40	45	
Gln Ile Arg Val Thr Lys Gly Ala Pro Leu Pro Phe Ala Phe Asp Ile			
50	55	60	

Leu Ser Pro Ala Phe Gln Tyr Gly Asn Arg Thr Phe Thr Lys Tyr Pro
 65 70 75 80
 Glu Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val
 85 90 95
 Tyr Glu Arg Thr Leu Arg Phe Glu Asp Gly Gly Leu Val Glu Ile Arg
 100 105 110
 Ser Asp Ile Asn Leu Ile Glu Glu Met Phe Glu Tyr Arg Val Glu Tyr
 115 120 125
 Lys Gly Arg Asn Phe Pro Asn Asp Gly Pro Val Met Lys Lys Thr Ile
 130 135 140
 Thr Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val
 145 150 155 160
 Leu Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe
 165 170 175
 Tyr Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys
 180 185 190
 Asp Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr
 195 200 205
 Val Glu Asp Gly Gly Phe Val Glu Gln His Glu Thr Ala Ile Ala Gln
 210 215 220
 Leu Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val
 225 230 235

<210> 25
 <211> 720
 <212> DNA
 <213> *Renilla reniformis*

<400> 25
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 atcctgttcg gcaaccagct ggtgcagatc cgcgtgacca agggcgcccc cctgcccttc 180
 gccttcgaca tcctgagccc cgccttcag tacggcaacc gcaccttcac caagtacccc 240
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 aagaatacca tcaccggcct gcagcccagc ttcgaggtgg tgtacatgaa cgacggcgtg 480
 ctggtggggc aggtgatcct ggtgtaccgc ctgaacagcg gcaagttcta cagctgccac 540

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cagcaccgcc tggagaaggc ctacgtggag gacggcgcca tcgtggagca gcacgagacc 660
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<210> 26
<211> 239
<212> PRT
<213> Renilla reniformis

<400> 26

Met	Val	Ser	Lys	Gln	Ile	Leu	Lys	Asn	Thr	Gly	Leu	Gln	Glu	Ile	Met
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Ser	Phe	Lys	Val	Ile	Leu	Glu	Gly	Val	Val	Asn	Asn	His	Val	Phe	Thr
			20					25					30		
Met	Glu	Gly	Cys	Gly	Lys	Gly	Asn	Ile	Leu	Phe	Gly	Asn	Gln	Leu	Val
		35					40					45			
Gln	Ile	Arg	Val	Thr	Lys	Gly	Ala	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile
	50					55					60				
Leu	Ser	Pro	Ala	Phe	Gln	Tyr	Gly	Asn	Arg	Thr	Phe	Thr	Lys	Tyr	Pro
65					70				75						80
Glu	Asp	Ile	Ser	Asp	Phe	Phe	Ile	Gln	Ser	Phe	Pro	Ala	Gly	Phe	Val
				85					90					95	
Tyr	Glu	Arg	Thr	Leu	Arg	Phe	Glu	Asp	Gly	Gly	Leu	Val	Glu	Ile	Arg
			100					105					110		
Ser	Asp	Ile	Asn	Leu	Ile	Glu	Gly	Met	Phe	Val	Tyr	Arg	Val	Glu	Tyr
		115					120					125			
Lys	Gly	Arg	Asn	Phe	Pro	Asn	Asp	Gly	Pro	Val	Met	Lys	Asn	Thr	Ile
	130					135					140				
Thr	Gly	Leu	Gln	Pro	Ser	Phe	Glu	Val	Val	Tyr	Met	Asn	Asp	Gly	Val
145				150						155					160
Leu	Val	Gly	Gln	Val	Ile	Leu	Val	Tyr	Arg	Leu	Asn	Ser	Gly	Lys	Phe
			165						170					175	
Tyr	Ser	Cys	His	Met	Arg	Thr	Leu	Met	Lys	Ser	Lys	Gly	Val	Val	Lys
			180					185					190		
Asp	Phe	Pro	Glu	Tyr	His	Phe	Ile	Gln	His	Arg	Leu	Glu	Lys	Ala	Tyr
		195					200					205			
Val	Glu	Asp	Gly	Gly	Ile	Val	Glu	Gln	His	Glu	Thr	Ala	Ile	Ala	Gln
	210					215					220				
Leu	Thr	Ser	Leu	Gly	Lys	Pro	Leu	Gly	Ser	Leu	His	Glu	Trp	Val	
225					230					235					

<210> 27
 <211> 720
 <212> DNA
 <213> Renilla reniformis

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 atcctgttcg gcaaccagct ggtgcagatc cgcgtgacca agggcgcccc cctgcccttc 180
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<210> 28
 <211> 239
 <212> PRT
 <213> Renilla reniformis

<400> 28
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 Met Glu Gly Cys Gly Lys Gly Asn Ile Leu Phe Gly Asn Gln Leu Val
 35 40 45
 Gln Ile Arg Val Thr Lys Gly Ala Pro Leu Pro Phe Ala Phe Asp Ile
 50 55 60
 Leu Ser Pro Ala Phe Gln Tyr Gly Asn Arg Thr Phe Thr Lys Tyr Pro
 65 70 75 80
 Glu Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val
 85 90 95
 Tyr Glu Arg Thr Leu Arg Tyr Glu Asp Gly Gly Leu Ala Glu Ile Arg

100	105	110
Ser Asp Ile Asn Leu Ile Glu Gly Met Phe Val Tyr Arg Val Glu Tyr 115 120 125		
Lys Gly Arg Asn Phe Pro Asn Asp Gly Pro Val Met Lys Asn Thr Ile 130 135 140		
Thr Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val 145 150 155 160		
Leu Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe 165 170 175		
Tyr Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys 180 185 190		
Asp Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr 195 200 205		
Val Glu Asp Gly Gly Phe Val Glu Gln His Glu Thr Ala Ile Ala Gln 210 215 220		
Leu Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val 225 230 235		

<210> 29

<211> 720

<212> DNA

<213> Renilla reniformis

<400> 29

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gccttcgaca tcctgagccc cgccttcag tacggcaacc gcaccttcac caagtacccc	240
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ctgcgctacg aggacggcgg cctggtggag atccgcagcg acatcaacct gatcgagggg	360
atgttcgtgt accgcgtgga gtacaagggc cgcaacttcc ccaacgacgg ccccgatg	420
aagaatacca tcaccggcct gcagcccagc ttcgaggtgg tgtacatgaa cgacggcgtg	480
ctggtggggc aggtgatcct ggtgtaccgc ctgaactgcg gcaagttcta cagctgccac	540
atgcgcaccc tgatgaagag caagggcgtg gtgaaggact tccccgagta ccacttcac	600
cagcaccgcc tggagaagac ctacgtggag gacggcggct tcgtggagca gcacgagacc	660
gccatcgccc agctgaccag cctgggcaag cccctgggca gcctgcacga gtgggtgtaa	720

<210> 30

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 ttattcggaa accaactggt tcagattcgt gtcacaaaag gggctccgct tccatttgca 180
 tttgatattc tctcaccagc tttccaatac ggcaaccgta cattcacgaa atacccggag 240
 gatatatcag acttttttat acaatcattt ccagcgggat ttgtatacga aagaacgttg 300
 cgttacgaag atgggtggact gggtgaaatc cggttcagata taaatttaat cgaggagatg 360
 tttgtctaca gagtgggaata taaaggtagt aacttcccga atgatgggtcc agtgatgaag 420
 aagacaatca caggattaca accttcgttc gaagttgtgt atatgaacga tggcgtcttg 480
 gttggccaag tcattcttgt ttatagatta aactctggca aattttattc gtgtcacatg 540
 agaacactga tgaaatcaaaa ggggtgtagtg aaggattttc ccgaatacca tttcattcaa 600
 catcgtttag agaagacgta tgtggaagac ggaggttttg ttgaggaaca cgagacggcc 660
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<210> 32

<211> 238

<212> PRT

<213> Renilla reniformis

<400> 32

Met Ser Lys Gln Ile Leu Lys Asn Thr Gly Leu Gln Glu Ile Met Ser
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Phe Lys Val Asn Leu Glu Gly Val Val Asn Asn His Val Phe Thr Met
20 25 30

Glu Gly Cys Gly Lys Gly Asn Ile Leu Phe Gly Asn Gln Leu Val Gln
35 40 45

Ile Arg Val Thr Lys Gly Ala Pro Leu Pro Phe Ala Phe Asp Ile Leu
50 55 60

Ser Pro Ala Phe Gln Tyr Gly Asn Arg Thr Phe Thr Lys Tyr Pro Glu
65 70 75 80

Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val Tyr
85 90 95

Glu Arg Thr Leu Arg Tyr Glu Asp Gly Gly Leu Val Glu Ile Arg Ser
100 105 110

Asp Ile Asn Leu Ile Glu Glu Met Phe Val Tyr Arg Val Glu Tyr Lys
115 120 125

Gly Ser Asn Phe Pro Asn Asp Gly Pro Val Met Lys Lys Thr Ile Thr
130 135 140

Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val Leu
 145 150 155 160
 Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe Tyr
 165 170 175
 Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys Asp
 180 185 190
 Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr Val
 195 200 205
 Glu Asp Gly Gly Phe Val Glu Glu His Glu Thr Ala Ile Ala Gln Leu
 210 215 220
 Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val
 225 230 235

<210> 33
 <211> 714
 <212> DNA
 <213> Renilla reniformis

<400> 33
 atgagtaaac aaatattgaa gaacactgga ttgcaggaga tcatgtcgtt taaagtgaat 60
 ctggaagggtg tagtaaacaa tcatgtgttc acaatggaag gttgtggaaa aggaaatatt 120
 ttattaggaa accaactggt tcagattcgt gtcacaaaag gggctccgct tccatttgca 180
 tttgatattc tctcaccagc tttccaatac ggcaaccgta cattcacgaa ataccggag 240
 gatatatcag acttttttat acaatcattt ccagcgggat ttgtatacga aagaacgttg 300
 cgttacgaag atggtggact gggtgaaatc cgttcagata taaatttaat cgaggagatg 360
 tttgtctaca gagtggaata taaaggtagt aacttcccga atgatgggtcc agtgatgaag 420
 aagacaatca caggattaca accttcgttc gaagttgtgt atatgaacga tggcgtcttg 480
 gttggccaag tcattcttgt ttatagatta aactctggca aattttattc gtgtcacatg 540
 agaacactga tgaaatcaaa ggggtgtagtg aaggattttc ccgaatacca tttcattcaa 600
 catcgtttag agaagacgta tgtggaagac ggaggttttg ttgaggaaca cgagacggcc 660
 attgctcaac tgacatcgct ggggaaacca cttggatcct tacacgaatg gggt 714

<210> 34
 <211> 238
 <212> PRT
 <213> Renilla reniformis

<400> 34

Met Ser Lys Gln Ile Leu Lys Asn Thr Gly Leu Gln Glu Ile Met Ser

1	5	10	15
Phe Lys Val Asn Leu Glu Gly Val Val Asn Asn His Val Phe Thr Met	20	25	30
Glu Gly Cys Gly Lys Gly Asn Ile Leu Leu Gly Asn Gln Leu Val Gln	35	40	45
Ile Arg Val Thr Lys Gly Ala Pro Leu Pro Phe Ala Phe Asp Ile Leu	50	55	60
Ser Pro Ala Phe Gln Tyr Gly Asn Arg Thr Phe Thr Lys Tyr Pro Glu	65	70	75
Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val Tyr	85	90	95
Glu Arg Thr Leu Arg Tyr Glu Asp Gly Gly Leu Val Glu Ile Arg Ser	100	105	110
Asp Ile Asn Leu Ile Glu Glu Met Phe Val Tyr Arg Val Glu Tyr Lys	115	120	125
Gly Ser Asn Phe Pro Asn Asp Gly Pro Val Met Lys Lys Thr Ile Thr	130	135	140
Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val Leu	145	150	155
Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe Tyr	165	170	175
Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys Asp	180	185	190
Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr Val	195	200	205
Glu Asp Gly Gly Phe Val Glu Glu His Glu Thr Ala Ile Ala Gln Leu	210	215	220
Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val	225	230	235

<210> 35

<211> 714

<212> DNA

<213> Renilla reniformis

<400> 35

atgagtaaac aaatattgaa gaacactgga ttgcaggaga tcatgtcggt taaagtgaat 60

ctggaagggtg tagtaaacia tcatgtgttc acaatggaag gttgtggaaa aggaaatatt 120

ttattcggaa accaactggt tcagattcgt gtcacaaaag gggctccgct tccatttgca 180

tttgatattc tctcaccagc tttccaatac ggcaaccgta cattcacgaa ataccggag 240

gatatatcag acttttttat acaatcattt ccagcgggat ttgtatacga aagaacgttg 300
cgttacgaag atggtggact ggttgaaatc cgttcagata taaatttaac cgaggggatg 360
tttgtctaca gagtggaata taaaggtagt aacttcccga atgatgggtcc agtgatgaag 420
aagacaatca caggattaca accttcgttc gaagtttgtgt atatgaacga tggcgtcttg 480
gttggccaag tcattcttgt ttatagatta aactctggca aattttattc gtgtcacatg 540
agaacactga tgaaatcaaa ggggtgtagtg aaggattttc ccgaatacca tttcattcaa 600
catcgtttag agaagacgta tgtggaagac ggaggttttg tagaggaaca cgagacggcc 660
attgctcaac tgacatcgct ggggaaacca cttggatcct tacacgaatg gggtt 714

<210> 36
<211> 238
<212> PRT
<213> Renilla reniformis

<400> 36

Met	Ser	Lys	Gln	Ile	Leu	Lys	Asn	Thr	Gly	Leu	Gln	Glu	Ile	Met	Ser	1	5	10	15
Phe	Lys	Val	Asn	Leu	Glu	Gly	Val	Val	Asn	Asn	His	Val	Phe	Thr	Met	20	25	30	
Glu	Gly	Cys	Gly	Lys	Gly	Asn	Ile	Leu	Phe	Gly	Asn	Gln	Leu	Val	Gln	35	40	45	
Ile	Arg	Val	Thr	Lys	Gly	Ala	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile	Leu	50	55	60	
Ser	Pro	Ala	Phe	Gln	Tyr	Gly	Asn	Arg	Thr	Phe	Thr	Lys	Tyr	Pro	Glu	65	70	75	80
Asp	Ile	Ser	Asp	Phe	Phe	Ile	Gln	Ser	Phe	Pro	Ala	Gly	Phe	Val	Tyr	85	90	95	
Glu	Arg	Thr	Leu	Arg	Tyr	Glu	Asp	Gly	Gly	Leu	Val	Glu	Ile	Arg	Ser	100	105	110	
Asp	Ile	Asn	Leu	Ile	Glu	Gly	Met	Phe	Val	Tyr	Arg	Val	Glu	Tyr	Lys	115	120	125	
Gly	Ser	Asn	Phe	Pro	Asn	Asp	Gly	Pro	Val	Met	Lys	Lys	Thr	Ile	Thr	130	135	140	
Gly	Leu	Gln	Pro	Ser	Phe	Glu	Val	Val	Tyr	Met	Asn	Asp	Gly	Val	Leu	145	150	155	160
Val	Gly	Gln	Val	Ile	Leu	Val	Tyr	Arg	Leu	Asn	Ser	Gly	Lys	Phe	Tyr	165	170	175	

Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys Asp
180 185 190

Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr Val
195 200 205

Glu Asp Gly Gly Phe Val Glu Glu His Glu Thr Ala Ile Ala Gln Leu
210 215 220

Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val
225 230 235

<210> 37
<211> 714
<212> DNA
<213> Renilla reniformis

<400> 37
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ttattcggaa accaactggt tcagattcgt gtcacaaaag gggctccgct tccatttgca 180
tttgatattc tctcaccagc tttccaatac ggcaaccgta cattcacgaa ataccgag 240
gatatatcag acttttttat acaatcattt ccagcgggat ttgtatacga aagaacgatg 300
cgttacgaag atgggtggact gggtgaaatc cggttcagata taaatttaac cgaggagatg 360
tttgtctaca gagtggaata taaaggtagt aacttcccga atgatgggtcc agtgatgaag 420
aagacaatca caggattaca accttcgttc gaagtgtgtg atatgaacga tggcgtcttg 480
gttggccaag tcattcttgt ttatagatta aactctggca aattttattc gtgtcacatg 540
agaacactga tgaaatcaaaa ggggtgtagtg aaggattttc ccgaatacca tttcattcaa 600
catcgtttag agaagacgta tgtggaagac ggaggttttg ttgaggaaca cgagacggcc 660
attgctcaac tgacatcgct ggggaaacca cttggatcct tacacgaatg gggt 714

<210> 38
<211> 238
<212> PRT
<213> Renilla reniformis

<400> 38

Met Ser Lys Gln Ile Leu Lys Asn Thr Gly Leu Gln Glu Ile Met Ser
1 5 10 15

Phe Lys Val Asn Leu Glu Gly Val Val Asn Asn His Val Phe Thr Met
20 25 30

Glu Gly Cys Gly Lys Gly Asn Ile Leu Phe Gly Asn Gln Leu Val Gln
35 40 45

Ile	Arg	Val	Thr	Lys	Gly	Ala	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile	Leu
50						55					60				
Ser	Pro	Ala	Phe	Gln	Tyr	Gly	Asn	Arg	Thr	Phe	Thr	Lys	Tyr	Pro	Glu
65				70					75					80	
Asp	Ile	Ser	Asp	Phe	Phe	Ile	Gln	Ser	Phe	Pro	Ala	Gly	Phe	Val	Tyr
			85					90						95	
Glu	Arg	Thr	Met	Arg	Tyr	Glu	Asp	Gly	Gly	Leu	Val	Glu	Ile	Arg	Ser
			100					105					110		
Asp	Ile	Asn	Leu	Ile	Glu	Glu	Met	Phe	Val	Tyr	Arg	Val	Glu	Tyr	Lys
		115					120					125			
Gly	Ser	Asn	Phe	Pro	Asn	Asp	Gly	Pro	Val	Met	Lys	Lys	Thr	Ile	Thr
		130				135					140				
Gly	Leu	Gln	Pro	Ser	Phe	Glu	Val	Val	Tyr	Met	Asn	Asp	Gly	Val	Leu
145					150					155					160
Val	Gly	Gln	Val	Ile	Leu	Val	Tyr	Arg	Leu	Asn	Ser	Gly	Lys	Phe	Tyr
			165					170						175	
Ser	Cys	His	Met	Arg	Thr	Leu	Met	Lys	Ser	Lys	Gly	Val	Val	Lys	Asp
			180					185					190		
Phe	Pro	Glu	Tyr	His	Phe	Ile	Gln	His	Arg	Leu	Glu	Lys	Thr	Tyr	Val
		195					200					205			
Glu	Asp	Gly	Gly	Phe	Val	Glu	Glu	His	Glu	Thr	Ala	Ile	Ala	Gln	Leu
	210					215					220				
Thr	Ser	Leu	Gly	Lys	Pro	Leu	Gly	Ser	Leu	His	Glu	Trp	Val		
225					230					235					

<210> 39
 <211> 714
 <212> DNA
 <213> Renilla reniformis

<400> 39	
atgagtaaac aaatattgaa gaacactgga ttgcaggaga tcatgtcgtt taaagtgaat	60
ctggaagggtg tagtaaacaa tcatgtgttc acaatggaag gttgtggaaa aggaaatatt	120
ttatccggaa accaactggt tcagattcgt gtcacaaaag gggctccgct tccatttgca	180
tttgatattc tctcaccagc tttccaatac ggcaaccgta cattcacgaa ataccggag	240
gatatatcag acttttttat acaatcattt ccagcgggat ttgtatacga aagaacgttg	300
cgttacgaag atggtggact ggttgaaatc cgttcagata taaatttaac cgaggagatg	360
tttgtctaca gagtggaata taaaggtagt aacttcccga atgatggtcc agtgatgaag	420

aagacaatca caggattaca accttcgttc gaagttgtgt atatgaacga tggcgtcttg 480
 gttggccaag tcattcttgt ttatagatta aactctggca aattttattc gtgtcacatg 540
 agaaactga tgaaatcaaa ggggtgtagtg aaggattttc ccgaatacca tttcattcaa 600
 catcgttttag agaagacgta tgtggaagac ggagggttttg ttgaggaaca cgagacggcc 660
 attgctcaac tgacatcgct ggggaaacca cttggatcct tacacgaatg gggtt 714

<210> 40
 <211> 238
 <212> PRT
 <213> Renilla reniformis

<400> 40

Met	Ser	Lys	Gln	Ile	Leu	Lys	Asn	Thr	Gly	Leu	Gln	Glu	Ile	Met	Ser
1				5					10					15	
Phe	Lys	Val	Asn	Leu	Glu	Gly	Val	Val	Asn	Asn	His	Val	Phe	Thr	Met
			20					25					30		
Glu	Gly	Cys	Gly	Lys	Gly	Asn	Ile	Leu	Ser	Gly	Asn	Gln	Leu	Val	Gln
		35					40					45			
Ile	Arg	Val	Thr	Lys	Gly	Ala	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile	Leu
	50					55					60				
Ser	Pro	Ala	Phe	Gln	Tyr	Gly	Asn	Arg	Thr	Phe	Thr	Lys	Tyr	Pro	Glu
65					70					75					80
Asp	Ile	Ser	Asp	Phe	Phe	Ile	Gln	Ser	Phe	Pro	Ala	Gly	Phe	Val	Tyr
			85						90					95	
Glu	Arg	Thr	Leu	Arg	Tyr	Glu	Asp	Gly	Gly	Leu	Val	Glu	Ile	Arg	Ser
			100					105					110		
Asp	Ile	Asn	Leu	Ile	Glu	Glu	Met	Phe	Val	Tyr	Arg	Val	Glu	Tyr	Lys
		115					120					125			
Gly	Ser	Asn	Phe	Pro	Asn	Asp	Gly	Pro	Val	Met	Lys	Lys	Thr	Ile	Thr
		130				135					140				
Gly	Leu	Gln	Pro	Ser	Phe	Glu	Val	Val	Tyr	Met	Asn	Asp	Gly	Val	Leu
145					150					155					160
Val	Gly	Gln	Val	Ile	Leu	Val	Tyr	Arg	Leu	Asn	Ser	Gly	Lys	Phe	Tyr
			165						170					175	
Ser	Cys	His	Met	Arg	Thr	Leu	Met	Lys	Ser	Lys	Gly	Val	Val	Lys	Asp
			180					185					190		
Phe	Pro	Glu	Tyr	His	Phe	Ile	Gln	His	Arg	Leu	Glu	Lys	Thr	Tyr	Val
		195					200					205			
Glu	Asp	Gly	Gly	Phe	Val	Glu	Glu	His	Glu	Thr	Ala	Ile	Ala	Gln	Leu

210 215 220
 Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val
 225 230 235

 <210> 41
 <211> 714
 <212> DNA
 <213> Renilla reniformis

 <400> 41
 atgagtaaac aaatattgaa gaacactgga ttgcaggaga tcatgtcgtt taaagtgaat 60

 ctggaagggtg tagtaaacia tcatgtgttc acaatggaag gttgtggaaa aggaaatatt 120

 ttattcggaa accaactggt tcagattcgt gtcacaaaag gggctccgct tccatttgca 180

 tttgatattc tctcaccagc tttccaatac ggcaaccgta cattcacgaa ataccggag 240

 gatatatcag acttttttat acaatcattt ccagcgggat ttgtatacga aagaacgttg 300

 tgttacgaag atggtggact ggttgaaatc cgttcagata taaatttaat cgaggagatg 360

 tttgtctacc atgtggaata taaaggtagt aacttcccga atgatgggtcc agtgatgaag 420

 aagacaatca caggattaca accttcgttc gaagtttgtt atatgaacga tggcgtcttg 480

 gttggccaag tcattcttgt ttatagatta aactctggca aattttattc gtgtcacatg 540

 agaacactga tgaaatcaaa ggggtgtagtg aaggattttc ccgaatacca tttcattcaa 600

 catcgtttag agaagacgta tgtggaagac ggagggtttg ttgaggaaca cgagacggcc 660

 attgctcaac tgacatcgct ggggaatcca cttggatcct tacacgaatg gggt 714

 <210> 42
 <211> 238
 <212> PRT
 <213> Renilla reniformis

 <400> 42

 Met Ser Lys Gln Ile Leu Lys Asn Thr Gly Leu Gln Glu Ile Met Ser
 1 5 10 15

 Phe Lys Val Asn Leu Glu Gly Val Val Asn Asn His Val Phe Thr Met
 20 25 30

 Glu Gly Cys Gly Lys Gly Asn Ile Leu Phe Gly Asn Gln Leu Val Gln
 35 40 45

 Ile Arg Val Thr Lys Gly Ala Pro Leu Pro Phe Ala Phe Asp Ile Leu
 50 55 60

 Ser Pro Ala Phe Gln Tyr Gly Asn Arg Thr Phe Thr Lys Tyr Pro Glu
 65 70 75 80

Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val Tyr
 85 90 95
 Glu Arg Thr Leu Cys Tyr Glu Asp Gly Gly Leu Val Glu Ile Arg Ser
 100 105 110
 Asp Ile Asn Leu Ile Glu Glu Met Phe Val Tyr His Val Glu Tyr Lys
 115 120 125
 Gly Ser Asn Phe Pro Asn Asp Gly Pro Val Met Lys Lys Thr Ile Thr
 130 135 140
 Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val Leu
 145 150 155 160
 Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe Tyr
 165 170 175
 Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys Asp
 180 185 190
 Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr Val
 195 200 205
 Glu Asp Gly Gly Phe Val Glu Glu His Glu Thr Ala Ile Ala Gln Leu
 210 215 220
 Thr Ser Leu Gly Tyr Pro Leu Gly Ser Leu His Glu Trp Val
 225 230 235

<210> 43
 <211> 714
 <212> DNA
 <213> Renilla reniformis

<400> 43
 atgagtaaac aaatattgaa gaacactgga ttgcaggaga tcatgtcgtt taaagtgatt 60
 ctggaagggtg tagtaaacia tcatgtgttc acaatggaag gttgtggaaa aggaaatatt 120
 ttattcggaa accaactggt tcagattcgt gtcacaaaag gggctccgct tccatttgca 180
 tttgatattc tctcaccagc tttccaatac ggcaaccgta cattcacgaa ataccggag 240
 gatataatcag acttttttat acaatcattt ccagcgggat ttgtatacga aagaacgttg 300
 cgttacgaag atggtggact ggttgaaatc cgttcagata taaatttaac cgaggggatg 360
 tttgtctaca gagtggaata taaaggtagt aacttcccga atgatgttcc agtgatgaag 420
 aatacaatca caggattaca accttcgttc gaagttgtgt atatgaacga tggcgtcttg 480
 gttggccaag tcattcttgt ttatagatta aactctggca aattttattc gtgtcacatg 540
 agaacactga tgaaatcaaa ggggtgtagtg aaggattttc ccgaatacca tttcattcaa 600
 catcgtttag agaagacgta tgtggaagac ggagggttttg ttgaggaaca cgagacggcc 660

attgctcaac tgacatcgct ggggaaacca cttggatcct tacacgaatg gggtt

714

<210> 44
 <211> 238
 <212> PRT
 <213> Renilla reniformis

<400> 44

Met Ser Lys Gln Ile Leu Lys Asn Thr Gly Leu Gln Glu Ile Met Ser
 1 5 10 15

Phe Lys Val Ile Leu Glu Gly Val Val Asn Asn His Val Phe Thr Met
 20 25 30

Glu Gly Cys Gly Lys Gly Asn Ile Leu Phe Gly Asn Gln Leu Val Gln
 35 40 45

Ile Arg Val Thr Lys Gly Ala Pro Leu Pro Phe Ala Phe Asp Ile Leu
 50 55 60

Ser Pro Ala Phe Gln Tyr Gly Asn Arg Thr Phe Thr Lys Tyr Pro Glu
 65 70 75 80

Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val Tyr
 85 90 95

Glu Arg Thr Leu Arg Tyr Glu Asp Gly Gly Leu Val Glu Ile Arg Ser
 100 105 110

Asp Ile Asn Leu Ile Glu Gly Met Phe Val Tyr Arg Val Glu Tyr Lys
 115 120 125

Gly Ser Asn Phe Pro Asn Asp Gly Pro Val Met Lys Asn Thr Ile Thr
 130 135 140

Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val Leu
 145 150 155 160

Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe Tyr
 165 170 175

Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys Asp
 180 185 190

Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr Val
 195 200 205

Glu Asp Gly Gly Phe Val Glu Glu His Glu Thr Ala Ile Ala Gln Leu
 210 215 220

Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val
 225 230 235

<210> 45
 <211> 714

<212> DNA
 <213> Renilla reniformis

<400> 45
 atgagtaaac aaatattgaa gaacactgga ttgcaggaga tcatgtcggt taaagtgaat 60
 ctggaagggtg tagtaaacia tcatgtgttc acaatggaag gttgtggaaa aggaaatatt 120
 ttattcggaa accaactggt tcagattcgt gtcacaaaag gggctccgct tccatttgca 180
 tttgatattc tctcaccagc tttccaatac ggcaaccgta cattcacgaa ataccggag 240
 gatatatcag acttttttat acaatcattt ccagcgggat ttgtatacga aagaacgttg 300
 cgtttcgaag atggtggact ggttgaaatc cgttcagata taaatttaat cgaggagatg 360
 tttgtctaca gagtggaata taaaggtagt aacttcccga atgatgggtcc agtgatgaag 420
 aagacaatca caggattaca accttcgttc gaagttgtgt atatgaacga tggcgtcttg 480
 gttggccaag tcattcttgt ttatagatta aactctggca aattttattc gtgtcacatg 540
 agaaactga tgaaatcaaa ggggtgtagtg aaggattttc ccgaatacca tttcattcaa 600
 catcgtttag agaagacgta tgtggaagac ggaggttttg ttgaggaaca cgagacggcc 660
 attgctcaac tgacatcgct ggggaaacca cttggatcct tacacgaatg gggt 714

<210> 46
 <211> 238
 <212> PRT
 <213> Renilla reniformis

<400> 46
 Met Ser Lys Gln Ile Leu Lys Asn Thr Gly Leu Gln Glu Ile Met Ser
 1 5 10 15
 Phe Lys Val Asn Leu Glu Gly Val Val Asn Asn His Val Phe Thr Met
 20 25 30
 Glu Gly Cys Gly Lys Gly Asn Ile Leu Phe Gly Asn Gln Leu Val Gln
 35 40 45
 Ile Arg Val Thr Lys Gly Ala Pro Leu Pro Phe Ala Phe Asp Ile Leu
 50 55 60
 Ser Pro Ala Phe Gln Tyr Gly Asn Arg Thr Phe Thr Lys Tyr Pro Glu
 65 70 75 80
 Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val Tyr
 85 90 95
 Glu Arg Thr Leu Arg Phe Glu Asp Gly Gly Leu Val Glu Ile Arg Ser
 100 105 110
 Asp Ile Asn Leu Ile Glu Glu Met Phe Val Tyr Arg Val Glu Tyr Lys

115	120	125
Gly Ser Asn Phe Pro Asn Asp Gly Pro Val Met Lys Lys Thr Ile Thr		
130	135	140
Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val Leu		
145	150	155
Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe Tyr		
	165	170
Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys Asp		
	180	185
Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr Val		
	195	200
Glu Asp Gly Gly Phe Val Glu Glu His Glu Thr Ala Ile Ala Gln Leu		
	210	215
Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val		
	225	230

<210> 47
 <211> 714
 <212> DNA
 <213> Renilla reniformis

<400> 47	
atgagtaaac aaatattgaa gaacactgga ttgcaggaga tcatgtcgtt taaagtgaat	60
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ttattcggaa accaactggt tcagattcgt gtcacaaaag gggctccgct tccatttgca	180
tttgatattc tctcaccagc tttccaatac ggcaaccgta cattcacgaa ataccgag	240
gatatatcag acttttttat acaatcattt ccagcgggat ttgtatacga aagaacgttg	300
cgtttcgaag atggtggact ggttgaaatc cgttcagata taaatttaac cgaggagatg	360
tttgtctaca gagggaata taaaggtagt aacttcccga atgatgggtcc agtgatgaag	420
aagacaatca caggattaca accttcgttc gaagttgtgt atatgaacga tggcgtcttg	480
gttgccaag tcattcttgt ttatagatta aactctggca aattttattc gtgtcacatg	540
agaacactga tgaaatcaaa ggggtgtagt aaggattttc ccgaatacca tttcattcaa	600
catcgtttag agaagacgta tgtggaagac ggagggtttg ttgaggaaca cgagacggcc	660
attgctcaac tgacatcgct ggggaaacca cttggatcct tacacgaatg gggt	714

<210> 48
 <211> 238
 <212> PRT
 <213> Renilla reniformis

<400> 48

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Met Ser Lys Gln Ile Leu Lys Asn Thr Gly Leu Gln Glu Ile Met Ser
1          5          10          15

Phe Lys Val Asn Leu Glu Gly Val Val Asn Asn His Val Phe Pro Met
          20          25          30

Glu Gly Cys Gly Lys Gly Asn Ile Leu Phe Gly Asn Gln Leu Val Gln
          35          40          45

Ile Arg Val Thr Lys Gly Ala Pro Leu Pro Phe Ala Phe Asp Ile Leu
          50          55          60

Ser Pro Ala Phe Gln Tyr Gly Asn Arg Thr Phe Thr Lys Tyr Pro Glu
65          70          75          80

Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val Tyr
          85          90          95

Glu Arg Thr Leu Arg Phe Glu Asp Gly Gly Leu Val Glu Ile Arg Ser
          100          105          110

Asp Ile Asn Leu Ile Glu Glu Met Phe Val Tyr Arg Val Glu Tyr Lys
          115          120          125

Gly Ser Asn Phe Pro Asn Asp Gly Pro Val Met Lys Lys Thr Ile Thr
          130          135          140

Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val Leu
145          150          155          160

Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe Tyr
          165          170          175

Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys Asp
          180          185          190

Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr Val
          195          200          205

Glu Asp Gly Gly Phe Val Glu Glu His Glu Thr Ala Ile Ala Gln Leu
          210          215          220

Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val
225          230          235

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<210> 49

<211> 714

<212> DNA

<213> Renilla reniformis

<400> 49

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atgagtaaac aaatattgaa gaacactgga ttgcaggaga tcatgtcgtt taaagtgaat      60

ctggaagggtg tagtaaacaa tcatgtgttc acaatggaag gttgtggaaa aggaaatatt      120

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ttattcggaa accaactggt tcagattcgt gtcacaaaag gggctccgct tccatttgca	180
tttgatattc tctcaccagc tttccaatac ggcaaccgta cattcacgaa ataccgagg	240
gatatatcag acttttttat acaatcattt ccagcgggat ttgtatacga aagaacgttg	300
cgttacgaag atgggtggact ggttgaaatc cgttcagata taaatttaat cgaggggatg	360
tttgtctaca gagtggaata taaaggtagt aacttcccga atgatgggcc agtgatgaag	420
aagacaatca caggattaca accttcgttc gaagttgtgt atatgaacga tggcgtcttg	480
gttggccaag tcattcttgt ttatagatta aactctggca aattttattc gtgtcacatg	540
agaacactga tgaaatcaaa ggggtgtagtg aaggattttc ccgaatacca tttcattcaa	600
catcgtttag agaagacgta tgtggaagac ggaggttttg ttgaggaaca cgagacggcc	660
attgctcaac tgacatcgt ggggaaacca cttggatcct tacacgaatg gggt	714

<210> 50
 <211> 238
 <212> PRT
 <213> Renilla reniformis

<400> 50

Met Ser Lys Gln Ile Leu Lys Asn Thr Gly Leu Gln Glu Ile Met Ser	
1 5 10 15	
Phe Lys Val Asn Leu Glu Gly Val Val Asn Asn His Val Phe Thr Met	
20 25 30	
Glu Gly Cys Gly Lys Gly Asn Ile Leu Phe Gly Asn Gln Leu Val Gln	
35 40 45	
Ile Arg Val Thr Lys Gly Ala Pro Leu Pro Phe Ala Phe Asp Ile Leu	
50 55 60	
Ser Pro Ala Phe Gln Tyr Gly Asn Arg Thr Phe Thr Lys Tyr Pro Glu	
65 70 75 80	
Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val Tyr	
85 90 95	
Glu Arg Thr Leu Arg Tyr Glu Asp Gly Gly Leu Val Glu Ile Arg Ser	
100 105 110	
Asp Ile Asn Leu Ile Glu Gly Met Phe Val Tyr Arg Val Glu Tyr Lys	
115 120 125	
Gly Ser Asn Phe Pro Asn Asp Gly Pro Val Met Lys Lys Thr Ile Thr	
130 135 140	
Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val Leu	
145 150 155 160	

Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe Tyr
165 170 175

Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys Asp
180 185 190

Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr Val
195 200 205

Glu Asp Gly Gly Phe Val Glu Glu His Glu Thr Ala Ile Ala Gln Leu
210 215 220

Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val
225 230 235

<210> 51
<211> 714
<212> DNA
<213> Renilla reniformis

<400> 51
atgagtaaac aaatattgaa gaacactgga ttgcaggaga tcatgtcgtt taaagtgaat 60
ctggaagggtg tagtaaaca tcatgtgttc acaatggaag gttgtggaaa aggaaatatt 120
ttatccggaa accaactggt tcagattcgt gtcacaaaag gggctccgct tccatttgca 180
tttgatattc tctcaccagc tttccaatac ggcaaccgta cattcacgaa atacccggag 240
gatatatcag acttttttat acaatcattt ccagcgggat ttgtatacga aagaacgttg 300
cgtttcgaag atggtggact ggttgaaatc cgttcagata taaatttaat cgaggagatg 360
tttgagtaca gagtggaata taaaggtagt aacttcccga atgatggtcc agtgatgaag 420
aagacaatca caggattaca accttcgttc gaagtgtgtg atatgaacga tggcgtcttg 480
gttggccaag tcattcttgt ttatagatta aactctggca aattttattc gtgtcacatg 540
agaacactga tgaaatcaaaa ggggtgtagtg aaggattttc ccgaatacca tttcattcaa 600
catcgtttag agaagacgta tgtggaagac ggaggttttg tagaggaaca cgagacggcc 660
attgctcaac tgacatcgct ggggaaacca cttggatcct tacacgaatg gggt 714

<210> 52
<211> 238
<212> PRT
<213> Renilla reniformis

<400> 52

Met Ser Lys Gln Ile Leu Lys Asn Thr Gly Leu Gln Glu Ile Met Ser
1 5 10 15

Phe Lys Val Asn Leu Glu Gly Val Val Asn Asn His Val Phe Thr Met

20					25					30					
Glu	Gly	Cys	Gly	Lys	Gly	Asn	Ile	Leu	Ser	Gly	Asn	Gln	Leu	Val	Gln
	35					40					45				
Ile	Arg	Val	Thr	Lys	Gly	Ala	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile	Leu
	50					55					60				
Ser	Pro	Ala	Phe	Gln	Tyr	Gly	Asn	Arg	Thr	Phe	Thr	Lys	Tyr	Pro	Glu
	65					70					75				80
Asp	Ile	Ser	Asp	Phe	Phe	Ile	Gln	Ser	Phe	Pro	Ala	Gly	Phe	Val	Tyr
				85					90					95	
Glu	Arg	Thr	Leu	Arg	Phe	Glu	Asp	Gly	Gly	Leu	Val	Glu	Ile	Arg	Ser
			100					105					110		
Asp	Ile	Asn	Leu	Ile	Glu	Glu	Met	Phe	Glu	Tyr	Arg	Val	Glu	Tyr	Lys
		115					120					125			
Gly	Ser	Asn	Phe	Pro	Asn	Asp	Gly	Pro	Val	Met	Lys	Lys	Thr	Ile	Thr
		130					135					140			
Gly	Leu	Gln	Pro	Ser	Phe	Glu	Val	Val	Tyr	Met	Asn	Asp	Gly	Val	Leu
	145					150					155				160
Val	Gly	Gln	Val	Ile	Leu	Val	Tyr	Arg	Leu	Asn	Ser	Gly	Lys	Phe	Tyr
				165					170					175	
Ser	Cys	His	Met	Arg	Thr	Leu	Met	Lys	Ser	Lys	Gly	Val	Val	Lys	Asp
			180					185					190		
Phe	Pro	Glu	Tyr	His	Phe	Ile	Gln	His	Arg	Leu	Glu	Lys	Thr	Tyr	Val
		195					200					205			
Glu	Asp	Gly	Gly	Phe	Val	Glu	Glu	His	Glu	Thr	Ala	Ile	Ala	Gln	Leu
	210						215				220				
Thr	Ser	Leu	Gly	Lys	Pro	Leu	Gly	Ser	Leu	His	Glu	Trp	Val		
	225					230					235				

<210> 53

<211> 714

<212> DNA

<213> Renilla reniformis

<400> 53

atgagtaaac aaatatgaa gaacactgga ttgcaggaga tcatgtcggt taaagtgaat 60

ctggaaggtg tagtaaacia tcatgtgttc acaatggaag gttgtggaaa aggaaatatt 120

ttatccggaa accaactggt tcagattcgt gtcacaaaag gggctccgct tccatttgca 180

tttgatattc tctcaccagc tttccaatac ggcaaccgta cattcacgaa ataccggag 240

gatatatcag acttttttat acaatcattt ccagcgggat ttgtatacga aagaacgttg 300

cgtttcgaag atggtggact ggttgaaatc cgttcagata taaatttaat cgaggagatg 360
 tttgagtaca gagtggaata taaaggtagt aacttcccga atgatgggtcc agtgatgaag 420
 aagacaatca caggattaca accttcgttc gaagttgtgt atatgaacga tggcgtcttg 480
 gttggccaag tcattcttgt ttatagatta aactctggca aattttattc gtgtcacatg 540
 agaacactga tgaaatcaaa ggggtgtagtg aaggattttc ccgaatacca tttcattcaa 600
 catcgtttag agaagacgta tgtggaagac ggaggttttg ttgaggaaca cgagacggcc 660
 attgctcaac tgacatcgct ggggaaacca cttggatcct tacacgaatg gggtt 714

<210> 54
 <211> 238
 <212> PRT
 <213> Renilla reniformis

<400> 54

Met	Ser	Lys	Gln	Ile	Leu	Lys	Asn	Thr	Gly	Leu	Gln	Glu	Ile	Met	Ser	1	5	10	15
Phe	Lys	Val	Asn	Leu	Glu	Gly	Val	Val	Asn	Asn	His	Val	Phe	Thr	Met	20	25	30	
Glu	Gly	Cys	Gly	Lys	Gly	Asn	Ile	Leu	Ser	Gly	Asn	Gln	Leu	Val	Gln	35	40	45	
Ile	Arg	Val	Thr	Lys	Gly	Ala	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile	Leu	50	55	60	
Ser	Pro	Ala	Phe	Gln	Tyr	Gly	Asn	Arg	Thr	Phe	Thr	Lys	Tyr	Pro	Glu	65	70	75	80
Asp	Ile	Ser	Asp	Phe	Phe	Ile	Gln	Ser	Phe	Pro	Ala	Gly	Phe	Val	Tyr	85	90	95	
Glu	Arg	Thr	Leu	Arg	Phe	Glu	Asp	Gly	Gly	Leu	Val	Glu	Ile	Arg	Ser	100	105	110	
Asp	Ile	Asn	Leu	Ile	Glu	Glu	Met	Phe	Glu	Tyr	Arg	Val	Glu	Tyr	Lys	115	120	125	
Gly	Ser	Asn	Phe	Pro	Asn	Asp	Gly	Pro	Val	Met	Lys	Lys	Thr	Ile	Thr	130	135	140	
Gly	Leu	Gln	Pro	Ser	Phe	Glu	Val	Val	Tyr	Met	Asn	Asp	Gly	Val	Leu	145	150	155	160
Val	Gly	Gln	Val	Ile	Leu	Val	Tyr	Arg	Leu	Asn	Ser	Gly	Lys	Phe	Tyr	165	170	175	
Ser	Cys	His	Met	Arg	Thr	Leu	Met	Lys	Ser	Lys	Gly	Val	Val	Lys	Asp	180	185	190	

Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr Val
 195 200 205

Glu Asp Gly Gly Phe Val Glu Glu His Glu Thr Ala Ile Ala Gln Leu
 210 215 220

Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val
 225 230 235

<210> 55
 <211> 714
 <212> DNA
 <213> Renilla reniformis

<400> 55
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 ctggaagggtg tagtaaacia tcatgtgttc acaatggaag gttgtggaaa aggaaatatt 120
 ttattcggaa accaactggt tcagattcgt gtcacaaaag gggctccgct tccatttgca 180
 tttgatattc tctcaccagc tttccaatac ggcaaccgta cattcacgaa ataccggag 240
 gatatatcag acttttttat acaatcattt ccagcgggat ttgtatacga aagaacgttg 300
 cgtttcgaag atggtggact ggttgaaatc cgttcagata taaatttaac cgaggggatg 360
 tttgtctaca gagggaata taaaggtagt aacttcccga atgatgggcc agtgatgaag 420
 aatacaatca caggattaca accttcgttc gaagtttgtt atatgaacga tggcgtcttg 480
 gttggccaag tcattcttgt ttatagatta aactctggca aattttattc gtgtcacatg 540
 agaacactga tgaaatcaaa ggggtgtagtg aaggattttc ccgaatacca tttcattcaa 600
 catcggttag agaaggcgta tgtggaagac ggaggtattg ttgaggaaca cgagacggcc 660
 attgctcaac tgacatcgtt ggggaaacca cttggatcct tacacgaatg gggtt 714

<210> 56
 <211> 238
 <212> PRT
 <213> Renilla reniformis

<400> 56

Met Ser Lys Gln Ile Leu Lys Asn Thr Gly Leu Gln Glu Ile Met Ser
 1 5 10 15

Phe Lys Val Ile Leu Glu Gly Val Val Asn Asn His Val Phe Thr Met
 20 25 30

Glu Gly Cys Gly Lys Gly Asn Ile Leu Phe Gly Asn Gln Leu Val Gln
 35 40 45

Ile Arg Val Thr Lys Gly Ala Pro Leu Pro Phe Ala Phe Asp Ile Leu
 50 55 60

Ser Pro Ala Phe Gln Tyr Gly Asn Arg Thr Phe Thr Lys Tyr Pro Glu
 65 70 75 80
 Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val Tyr
 85 90 95
 Glu Arg Thr Leu Arg Phe Glu Asp Gly Gly Leu Val Glu Ile Arg Ser
 100 105 110
 Asp Ile Asn Leu Ile Glu Gly Met Phe Val Tyr Arg Val Glu Tyr Lys
 115 120 125
 Gly Ser Asn Phe Pro Asn Asp Gly Pro Val Met Lys Asn Thr Ile Thr
 130 135 140
 Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val Leu
 145 150 155 160
 Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe Tyr
 165 170 175
 Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys Asp
 180 185 190
 Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Ala Tyr Val
 195 200 205
 Glu Asp Gly Gly Ile Val Glu Glu His Glu Thr Ala Ile Ala Gln Leu
 210 215 220
 Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val
 225 230 235

<210> 57
 <211> 714
 <212> DNA
 <213> Renilla reniformis

<400> 57
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 ttattcggaa accaactggt tcagattcgt gtcacaaaag gggctccgct tccatttgca 180
 tttgatattc tctcaccagc tttccaatac ggcaaccgta cattcacgaa ataccggag 240
 gatatatcag acttttttat acaatcattt ccagcgggat ttgtatacga aagaacgttg 300
 cgttacgaag atggtggact ggctgaaatc cgttcagata taaatttaac cgaggggatg 360
 tttgtctaca gagtggaata taaaggtagt aacttcccga atgatgggcc agtgatgaag 420
 aatacaatca caggattaca accttcgttc gaagttgtgt atatgaacga tggcgtcttg 480
 gttggccaag tcattcttgt ttatagatta aactctggca aattttattc gtgtcacatg 540

agaacactga tgaaatcaaa ggggtgtagtg aaggattttc ccgaataacca tttcattcaa 600

catcgtttag agaagacgta tgtggaagac ggagggttttg ttgaggaaca cgagacggcc 660

attgctcaac tgacatcgct ggggaaacca cttggatcct tacacgaatg gggt 714

<210> 58

<211> 238

<212> PRT

<213> Renilla reniformis

<400> 58

Met Ser Lys Gln Ile Leu Lys Asn Thr Gly Leu Gln Glu Ile Met Ser
1 5 10 15

Phe Lys Val Asn Leu Glu Gly Val Val Asn Asn His Val Phe Thr Met
20 25 30

Glu Gly Cys Gly Lys Gly Asn Ile Leu Phe Gly Asn Gln Leu Val Gln
35 40 45

Ile Arg Val Thr Lys Gly Ala Pro Leu Pro Phe Ala Phe Asp Ile Leu
50 55 60

Ser Pro Ala Phe Gln Tyr Gly Asn Arg Thr Phe Thr Lys Tyr Pro Glu
65 70 75 80

Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val Tyr
85 90 95

Glu Arg Thr Leu Arg Tyr Glu Asp Gly Gly Leu Ala Glu Ile Arg Ser
100 105 110

Asp Ile Asn Leu Ile Glu Gly Met Phe Val Tyr Arg Val Glu Tyr Lys
115 120 125

Gly Ser Asn Phe Pro Asn Asp Gly Pro Val Met Lys Asn Thr Ile Thr
130 135 140

Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val Leu
145 150 155 160

Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Ser Gly Lys Phe Tyr
165 170 175

Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys Asp
180 185 190

Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr Val
195 200 205

Glu Asp Gly Gly Phe Val Glu Glu His Glu Thr Ala Ile Ala Gln Leu
210 215 220

Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val

225

230

235

<210> 59

<211> 714

<212> DNA

<213> *Renilla reniformis*

<400> 59

atgagtaaac aaatattgaa gaacactgga ttgcaggaga tcgtgtcggt taaagtgatt 60

ctggaagggtg tagtaaacaa tcatgtgttc acaatggaag gttgtggaaa aggaaatatt 120

ttattcggaa accaactggt tcagattcgt gtcacaaaag gggctccgct tccatttgca 180

tttgatattc tctcaccagc tttccaatac ggcaaccgta cattcacgaa ataccggag 240

gatatatcag acttttttat acaatcattt ccagcgggat ttgtatacga aagaacgttg 300

cgttacgaag atgggtggact ggttgaaatc cgttcagata taaatttaat cgaggggatg 360

tttgtctaca gagtggaata taaaggtagt aacttcccgga atgatgggtcc agtgatgaag 420

aatacaatca caggattaca accttcgttc gaagttgtgt atatgaacga tggcgtcttg 480

gttggccaag tcattcttgt ttatagatta aactgtggca aattttattc gtgtcacatg 540

agaacactga tgaaatcaaaa ggggtgtagtg aaggattttc ccgaatacca tttcattcaa 600

catcgtttag agaagacgta tgtggaagac ggaggttttg ttgaggaaca cgagacggcc 660

attgctcaac tgacatcgct ggggaaacca cttggatcct tacacgaatg gggt 714

<210> 60

<211> 238

<212> PRT

<213> *Renilla reniformis*

<400> 60

Met Ser Lys Gln Ile Leu Lys Asn Thr Gly Leu Gln Glu Ile Val Ser
1 5 10 15Phe Lys Val Ile Leu Glu Gly Val Val Asn Asn His Val Phe Thr Met
20 25 30Glu Gly Cys Gly Lys Gly Asn Ile Leu Phe Gly Asn Gln Leu Val Gln
35 40 45Ile Arg Val Thr Lys Gly Ala Pro Leu Pro Phe Ala Phe Asp Ile Leu
50 55 60Ser Pro Ala Phe Gln Tyr Gly Asn Arg Thr Phe Thr Lys Tyr Pro Glu
65 70 75 80Asp Ile Ser Asp Phe Phe Ile Gln Ser Phe Pro Ala Gly Phe Val Tyr
85 90 95

Glu Arg Thr Leu Arg Tyr Glu Asp Gly Gly Leu Val Glu Ile Arg Ser
 100 105 110
 Asp Ile Asn Leu Ile Glu Gly Met Phe Val Tyr Arg Val Glu Tyr Lys
 115 120 125
 Gly Ser Asn Phe Pro Asn Asp Gly Pro Val Met Lys Asn Thr Ile Thr
 130 135 140
 Gly Leu Gln Pro Ser Phe Glu Val Val Tyr Met Asn Asp Gly Val Leu
 145 150 155 160
 Val Gly Gln Val Ile Leu Val Tyr Arg Leu Asn Cys Gly Lys Phe Tyr
 165 170 175
 Ser Cys His Met Arg Thr Leu Met Lys Ser Lys Gly Val Val Lys Asp
 180 185 190
 Phe Pro Glu Tyr His Phe Ile Gln His Arg Leu Glu Lys Thr Tyr Val
 195 200 205
 Glu Asp Gly Gly Phe Val Glu Glu His Glu Thr Ala Ile Ala Gln Leu
 210 215 220
 Thr Ser Leu Gly Lys Pro Leu Gly Ser Leu His Glu Trp Val
 225 230 235

<210> 61
 <211> 714
 <212> DNA
 <213> *Renilla reniformis*

<400> 61
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 ttattcggaa accaactggt tcagattcgt gtcacaaaag gggctccgct tccatttgca 180
 tttgatattc tctcaccagc cttccaatac ggcaaccgta cattcacgaa ataccggag 240
 gatatatcag acttttttat acaatcattt ccagcgggat ttgtatacga aagagcgttg 300
 cgttacgaag atggtggact gggtgaaatc cgttcagata taaatttaac cgaggagatg 360
 tttgtctaca gagggaata taaaggtagt aacttcccga atgatggtcc agtgatgaag 420
 aagacaatca caggattaca accttcgttc gaagttgtgt atatgaacga tggcgtcttg 480
 gttggccaag tcattcttgt ttatagatta aactctggca aattttattc gtgtcacatg 540
 agaacactga tgaaatcaaa ggggtgtagtg aaggattttc ccgaatacca ttctattcaa 600
 catcgtttag agaagacgta tgtggaagac ggaggttttg ttgaggaaca cgagacggcc 660
 attgctcaac tgacatcgct ggggaaacca cttggatcct tacacgaatg gggt 714

<210> 62
 <211> 238
 <212> PRT
 <213> Renilla reniformis

<400> 62

Met	Ser	Lys	Gln	Ile	Leu	Lys	Asn	Thr	Gly	Leu	Gln	Glu	Ile	Met	Ser
1				5					10					15	
Phe	Lys	Val	Asn	Leu	Glu	Gly	Val	Val	Asn	Asn	His	Val	Phe	Thr	Met
			20					25					30		
Glu	Gly	Cys	Gly	Lys	Gly	Asn	Ile	Leu	Phe	Gly	Asn	Gln	Leu	Val	Gln
		35					40					45			
Ile	Arg	Val	Thr	Lys	Gly	Ala	Pro	Leu	Pro	Phe	Ala	Phe	Asp	Ile	Leu
	50					55					60				
Ser	Pro	Ala	Phe	Gln	Tyr	Gly	Asn	Arg	Thr	Phe	Thr	Lys	Tyr	Pro	Glu
65					70					75					80
Asp	Ile	Ser	Asp	Phe	Phe	Ile	Gln	Ser	Phe	Pro	Ala	Gly	Phe	Val	Tyr
				85					90					95	
Glu	Arg	Ala	Leu	Arg	Tyr	Glu	Asp	Gly	Gly	Leu	Val	Glu	Ile	Arg	Ser
			100					105					110		
Asp	Ile	Asn	Leu	Ile	Glu	Glu	Met	Phe	Val	Tyr	Arg	Val	Glu	Tyr	Lys
		115					120					125			
Gly	Ser	Asn	Phe	Pro	Asn	Asp	Gly	Pro	Val	Met	Lys	Lys	Thr	Ile	Thr
	130					135					140				
Gly	Leu	Gln	Pro	Ser	Phe	Glu	Val	Val	Tyr	Met	Asn	Asp	Gly	Val	Leu
145					150					155					160
Val	Gly	Gln	Val	Ile	Leu	Val	Tyr	Arg	Leu	Asn	Ser	Gly	Lys	Phe	Tyr
				165					170					175	
Ser	Cys	His	Met	Arg	Thr	Leu	Met	Lys	Ser	Lys	Gly	Val	Val	Lys	Asp
			180					185					190		
Phe	Pro	Glu	Tyr	His	Phe	Ile	Gln	His	Arg	Leu	Glu	Lys	Thr	Tyr	Val
		195					200					205			
Glu	Asp	Gly	Gly	Phe	Val	Glu	Glu	His	Glu	Thr	Ala	Ile	Ala	Gln	Leu
	210						215				220				
Thr	Ser	Leu	Gly	Lys	Pro	Leu	Gly	Ser	Leu	His	Glu	Trp	Val		
225					230					235					

<210> 63
 <211> 36
 <212> DNA
 <213> Artificial

<220>
 <223> PCR primer

<400> 63
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<210> 64
 <211> 37
 <212> DNA
 <213> Artificial

<220>
 <223> PCR Primer

<400> 64
 attattatta agcttctatt acaccactc gtgcagg 37

<210> 65
 <211> 17
 <212> DNA
 <213> Artificial

<220>
 <223> ERFP1 Sequencing primer

<400> 65
 cttcgacatc ctgagcc 17

<210> 66
 <211> 19
 <212> DNA
 <213> Artificial

<220>
 <223> ERFP2 sequencing primer

<400> 66
 cgcattgtggc agctgtaga 19

<210> 67
 <211> 33
 <212> DNA
 <213> Artificial

<220>
 <223> Oligonucleotide Primer for Introduction of hrGFP Mutations into
 Mammalian Expression Vectors

<400> 67
 aagggaaca tcctgttagg caaccagctg gtg 33

<210> 68
 <211> 33
 <212> DNA
 <213> Artificial

<220>

<223> Oligonucleotide Primer for Introduction of hrGFP Mutations into
Mammalian Expression Vectors

<400> 68
acatcaacct gatcgagggg atgttcgtgt acc 33

<210> 69
<211> 32
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Mammalian Expression Vectors

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